

The Mozart Effect - Metamusic, Memory, Sleep & Quantum Learning

By Barbara Bullard, M.A.



THE NATIONAL SLEEP Foundation, in March of 2004, conducted the largest poll thus far that illuminates a growing problem: "our children have poor sleep habits for which they pay a high price and their parents or caregivers lose an estimated 200 hours of extra sleep in a year due to their child's nighttime awakenings."¹

From elementary school through high school and beyond, a great many of our children are chronically sleep-deprived. In studies of elementary school-age children, nearly 40% showed some kind of sleep problem, 50% of adolescents reported at least occasional difficulty falling or staying asleep, with up to 13% experiencing chronic and severe insomnia. Clearly, the amount of sleep most teenagers get is

insufficient, with the average getting under seven hours, and with only a mere 15% sleeping the suggested eight or more hours on a school night.

Wreaking havoc on their health, academic performance, and behavior, sleep deprivation is one of the primary causes of instability in youth, and it is important for parents to become aware of the healthy techniques available to promote better sleep patterns in their children.²

Much has been written about how sleep deprivation can be harmful for the adult population, but sleep deficit can have an even greater impact on the young because of the crucial effects it has on development of the brain, affecting concentration, attention and mood.

Pediatric research findings are rather startling in this regard: "Poor sleepers reported being significantly more depressed, without energy, tired, tense, moody, stressed, irritable, and less alert than good sleepers. They are more likely to display Type A behavior problems at school and at home. Interestingly enough, they were also more likely to have a negative self-image.

Even 20 fewer minutes of needed sleep may significantly affect behavior in many areas. One study showed that students with C's, D's and F's got about 25 fewer minutes of sleep and went to bed an average of 40 minutes later than A and B students."³ It is clear that persistent sleep problems have been associated with many learning difficulties throughout the school years.

In the 2004 National Sleep Foundation poll three out of four parents/caregivers said they would change something about their children's sleep habits if they could. Early intervention is crucial because research has found that most children do not "grow out of" their sleep problems: rather, the sleep problems of childhood tend to get "wired" into the brain and to persist into adulthood.^{4,5}

In the NY Times bestseller, *Secrets of the Baby Whisperer—how to Calm, Connect, and Communicate With Your Baby*, Tracy Hogg notes: "What a good many people don't realize is that **babies need parents' direction** to establish proper sleep habits. In fact, the reason so-called sleep problems are so common is because so many parents don't realize that they, not their babies, must control bedtime."⁶

■ TV's, computers and sleeping problems

How do we accomplish this very important task of helping our children get enough quality sleep? The most important first step is to monitor the amount of exposure to mass media, such as television, video games, and computers throughout the day. The American Academy of Pediatrics and the American Psychological Association would

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recommend that to keep TV watching to a healthy level, parents need to set definite agreed-upon limits to how much and what children can watch, with children under two NOT watching television at all. This may involve a struggle for the parents to monitor the time spent on television and computers as a child becomes older, but it is well worth the struggles in the long run.⁷

■ Television in the bedroom

It is obviously important to control the timing of any exposure to mass media, but the most important time is just before bedtime. Dr. Judith Owens, Director of the pediatrics sleep disorder clinic at Hasbro Children's Hospital, states: "The children who have the most difficulty sleeping, resist going to bed and wake up most during the night, are the children who watched television just before bedtime... Television viewing around bedtime is not a benign influence since a television in the bedroom was the most powerful predictor of overall sleep disturbances. Twenty percent of the children studied had a television in their bedrooms."⁸

Monitoring the amount of television time is crucial in early brain development but does not end there. A study published in *The Archives of Pediatrics and Adolescent Medicine*, found that three hours or more of television viewing each day at age 14 was associated with difficulty sleeping in adulthood. Sleeping habits would improve in cases where the adolescents cut their viewing time to an hour or less each day by age 16. Therefore, it seems obvious that the first step in helping your child's sleep hygiene is to turn off the television and limit computer usage at least one hour before sleeptime.

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■ Importance of routine

Dr. Jodi Mindell, of the Sleep Disorders Center at the Children's Hospital of Philadelphia, says that other major factors contributing to bedtime battles include putting your child to bed too late, failing to create a regular bedtime routine, and giving your child mixed signals about going to bed. "There's a window of opportunity in which your child will easily go to sleep. Once you go past that, they are overtired and they will fight sleep."⁹

No matter how much your child fights the need to sleep at an established proper time, it is crucial for him or her to get enough quality sleep so that the body recharges the nervous system and the brain. It is important for us to remember that children, as a rule, need much more sleep than adults. Their growing bodies need this time to create and benefit from the release of human growth hormone, which is secreted at night during deep sleep stages. It has been found that children who sleep poorly for prolonged periods often fail to grow at normal rates. Dr. Mindell recommends that babies and toddlers get 10-12 hours of nighttime sleep, children in elementary school get 9-11 hours, and adolescents need 9 $\frac{1}{4}$ hours on average.¹⁰

As pro-active parents, we need to help our children develop their own sleep-inducing strategies. We cannot force them to sleep, as trying too hard increases the adrenaline, and a tired child becomes a cranky child. Instead, we must gently facilitate their process of discovering patterns that allow them to "surrender" to their body's own innate sleep needs. As you discover the patterns together, it is important to maintain the routine as much as possible.

■ 'Winding-down' activities

In developing a bedtime routine, subconscious signals to the child's body and mind are established that encourage them to prepare for and surrender to sleep needs. A reminder about 15 minutes before starting the bedtime routine is a good way to get them to start wrapping up any stimulating activities they may be involved in. This should be done roughly an hour before the desired bedtime. Then begin switching into more quiet or relaxing activities to help the body and mind of the child to calm down, including warm baths or showers, brushing teeth, moving into a quiet bedroom and telling the child a story or reading a book. Of course, the content of the book should not be scary or violent since the topic of the book will influence the dream states as the child goes to sleep.

■ Food and drinks to avoid before bedtime

Another factor is to keep close tabs on foods and drinks being consumed within the hour before sleep. All children should avoid drinking sodas and eating spicy foods, sugars, candies, and chips, etc., in pre-bedtime hours. Any foods with caffeine, such as colas and chocolate, need to be tapered off after dinner. Foods that help your body produce serotonin (an important neuro-hormone involved in sleep), such as fruit and carbohydrates, can help induce sleep. The old-time suggestion for your child to drink warm milk is also helpful to induce a relaxed mode. Helping your child learn to do slow, deep, rhythmic breathing is also helpful as they get into bed, this time may be combined with prayers and affirmations.

The National Sleep Foundation also has two wonderful resources for parents concerned about sleep-education for their children: *Time to Sleep with P.J. Bear*, is a colorful comic book that helps children ages 7-10 and their parents to explore the important benefits of sleep and its relation to their health, safety, and learning.



The Children's Sleep Diary, allows school-aged children to have fun recording their sodas, their bedtime routine, hours of sleep and amount of energy for seven days and nights. This Diary contains a full page of tips and facts to help children establish their own lifelong positive sleep habits.¹¹

■ 'Designer' music helps synchronize the brain

All of the above suggestions make logical, as well as intuitive sense. However, looking again at the impact of our media-saturated world, it may become highly beneficial to also add a sonic environment that is conducive to enhancing deep sleep patterns in the child's bedroom. There is so much ambient noise in a modern household, that it is effective to provide an appropriate musical background in the bedrooms to shut out other household noises that might interrupt the child moving into sleep.

Many children cannot fall asleep if there is too much noise or too much quiet around. Children all too often get in the habit of listening to their favorite rock and roll CD's or the radio to fall asleep with. This is completely contradictory to what they should be using because this type of music over stimulates them. This often leads into sleep cycles that are filled with too much non-REM sleep and can leave them feeling groggy and cranky – even if they had enough hours of sleep – it was not the desired cycles of sleep.

■ The Mozart Effect

Ever since the popularity of Don Campbell's *The Mozart Effect*, many companies are advertising sleep music and lullabies for the sleep needs of younger children. Sleep specialist Don Campbell suggested a few compilations to facilitate sleep. Two popular sets are entitled, *The Mozart Effect-Sleep Lullabies for Children*, and *Music For Babies-Sleepy Baby*.¹²

It is important to understand that any music used to assist babies and children into a sleep state must be slow, melodic, with rhythms and instrumentation that help their heart rate and brainwaves slow down through the process of entrainment. Many recordings of nature sounds of ocean waves and forest sounds have also been found to be helpful.

"Embedded underneath the music are multiple layers of brainwave patterns of synchronized Alpha/Theta and then Delta patterns, entraining and gently leading the brain to deep relaxation and eventually sleep."

■ Outgrowing lullabies

Although children will soon outgrow the use of lullabies as an aid to sleep – and because the sleep crisis is so rampant – science and musicians are collaborating in the creation of “*designer music*,” – music specifically crafted to enhance the relaxed and sleeping brain. Renowned sound researchers like Alfred Tomatis and Don Campbell have documented much about the healing aspects of certain sound environments and their effect as being nutrients for the nervous system.¹²

Because music is the only input that naturally synchronizes the brain, different musical backgrounds can be used throughout our lives to help the brain achieve any desired state.

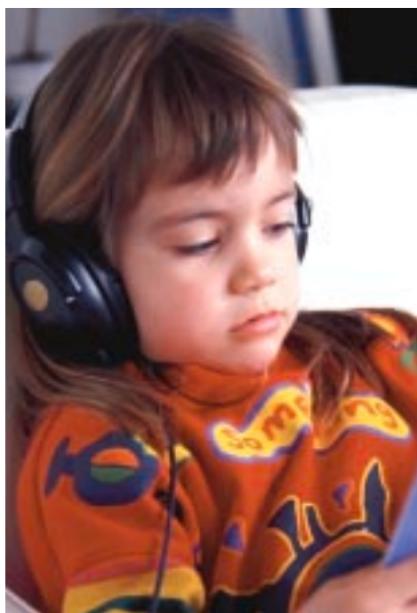
In a previous article, titled “*Opening the ADD MIND with Metamusic*,”¹³ I discussed my collaboration with the Monroe Institute of Virginia to create musical backgrounds embedded with multiple layers of hemi-sync™ beta-harmonic brainwave patterns that open the hemispheres of the brain to greatly enhance learning and memory. Once again I would advocate the use of hemi-sync™, although, when used as a sleep aid, there are some key differences that should be understood in the underlying brainwave patterns.

What initially led me to The Monroe Institute 16 years ago was its foremost reputation for the creation of hemi-sync™ sound environments that profoundly facilitate the listener into organic deep sleep cycles, which facilitate the homeostatic healing states of the body.

My work with AIDS patients and children hospitalized with life-threatening illnesses led me on a search for sound treatments that could help them achieve deep sleep and assist their brains to release into the recuperative levels of deep REM sleep, despite their illnesses and pains. I have witnessed the rigid muscles of a four-year-old who had nearly drowned relax back to their previous state within ten minutes of listening to Metamusic™. I have also seen dozens of hospitalized patients reduce their use of pain and sleeping pills by more than half, using both Metamusic™ and hemi-sync™. Witnessing these effects convinced me that Metamusic™ from the Monroe Institute was ‘more than music’. Embedded underneath the music are multiple layers of brainwave patterns of synchronized Alpha/Theta and then Delta patterns, entraining and gently leading the brain to deep relaxation and eventually sleep. The synergy of the hemi-sync™ patterns with the music designed for sleep can be most powerful. Due to its success, hemi-sync™ has been a common tool used in many sleep disorder clinics for decades.

■ The stages of sleep children most benefit from

To more fully appreciate why Monroe’s hemi-sync™ CD’s are so effective in facilitating deep sleep states, let us turn for a moment to consider what type of sleep we are seeking for our children and where exactly a sleep deficit harms them.



In normal sleep cycles, we spend 80% of the time in deep delta brainwave, non-REM sleep, punctuated every 90 minutes by REM sleep - rapid eye movement cycles where the brain is quite active and in a dreaming mode. Generally speaking, in non-REM cycles the brain is stimulating a major immune function, with the emphasis being on the central nervous system's need to repair and restore itself. This is why children naturally sleep more when they are ill. Deep sleep stages help to heal wounds and fight infection; whereas during REM sleep cycles there is a major preservation, or anchoring in, of new learning from the day.¹⁴

■ Supersleep – the key to health and learning

J. Alan Hobson, MD, professor of psychiatry, at Harvard Medical School calls REM "super sleep," because of its importance to health and integration of remembering any information learned that day. Newborns spend almost 50% of their sleeping

hours in REM. Many researchers theorize that newborns need the large amounts of REM sleep for their intense brain development. REM sleep cycles then begin to decline to about 25% in adolescent and adult sleep needs, but REM seems to still be crucial for integration of new learning. If the REM cycles are disrupted no new learning takes place. The longer we sleep, the longer the duration of the REM stage, which peaks in the last third of the normal sleep pattern. The less sleep we get, therefore, the more we lose the crucial REM cycles in the important final two hours of sleep.¹⁵

After decades of research I can think of nothing better to help nurture the desired sleep environments than to begin playing the following hemi-sync™ CD's in the bedroom to facilitate sleep. Personal favorites of mine that are designed to help children drift off to REM sleep more readily include: *Sleeping Through The Rain*, *Cloudscapes*, *Midsummer Night*, *Into The Deep* and *Transformations*.

■ Storytelling

In most situations, the gentle sonic background will naturally lead children to deeper sleep cycles. If the child prefers to be led to sleep with storytelling, I recommend two newly designed CD's: *JoyJumper* which relates the 40-minute tale of a girl who just does not want to go to sleep and *Robbie the Rabbit* in which a rabbit takes the child on a fascinating, sleep-enhancing journey to the calming magic of the forest. Children under 10 who have been experiencing these two new CD's really love hearing these stories as they slip into sleep. I highly recommend them, especially for nights where "extra measures" are in order.¹⁶

Everything that has been discussed above also applies to the majority of adolescents and adults suffering from sleep-deficits. My family and I use Metamusic regularly in our bedtime rituals. Fortunately, there is a far wider selection of Metamusic™ available for adults.

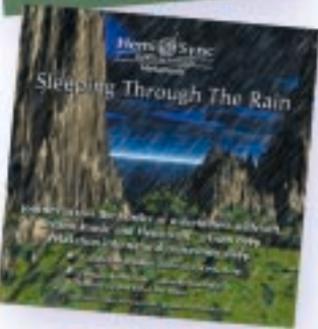
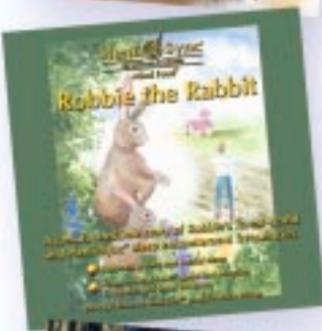
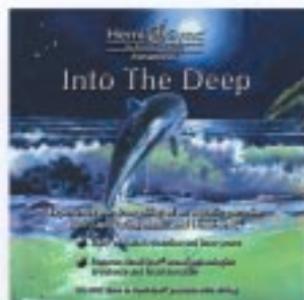
Personal favorites of my family, other than those mentioned earlier, include: *Higher, Inner Journey, Ascension, Journey to the other Side*, and *Deep Journeys*. There are also many wonderful choices for adults with more profound sleep needs who prefer a sleep induction ingredient. These have similar crafted hemi-sync™ brain-wave patterns but with guided sleep induction.

Scott Taylor, M.D. creator of *Sleep Better Workshop*, specifically recommends the following CD's from the hundreds available from the Monroe Institute to facilitate sleep: *Deep Ten Relaxation, Restorative Sleep, Sound Sleeper, Supersleep, Catnapper* (for 30-minute daytime "power naps" that induce a REM cycle) and *TimeOut for Sleep* - a multiple sleep CD which has all the desired sleep cycles, which has been found to be especially helpful for those with chronic fatigue syndrome, Fibromyalgia and other illnesses that have sleep disruption components.¹⁶

■ Creates new neural pathways

So – aside from all the health habits that can be established for solving bedtime battles, the HemiSync™ and Metamusic™ creations of the Monroe are excellent holistic sleep-aids. Not only do they promote more restful and efficient sleep during use; they also create new neural pathways that train the body and mind to be able to induce its own natural sleep state. Thus they do not become a crutch, but rather, are tools for better health, vitality, balance, and empowerment.

The more researchers investigate the sleeping brain, the more clear it becomes that sufficient sleep is a **necessity** for our children's health, not just a luxury. Studies of the neurological, chemical and electrical activity of the sleeping brain show that even minimal sleep loss or disruption can have profound and detrimental effects on cognition, mood, performance, productivity, general health, learning, and the immune system.¹⁷



May all of these bedtime rituals help you and your family sleep well tonight. Sweet Dreams.

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ABOUT THE AUTHOR



Barbara Bullard has been Professor of Speech Communications at Orange Coast College for thirty-eight years, and is currently Chair of the Dept. She has been nominated five times since the 90's for Faculty Member of the Year at the college and received the prestigious NISOD Teaching Excellence award for Innovation from the University of Texas in 1994, 1999, and 2000. In 2000 and 2001 Barbara was a Master Presenter at the NISOD Conference speaking on 'Music and METAMUSIC in the Classroom.' She was selected for Who's Who Among America's Teachers in 2002, and has been a professional member of The Monroe Institute since 1989. Her most important achievement is that she is the proud mother of three self-described Indigos. The above article is based on her presentation at the 2002 Monroe Professional Seminar. Barbara has co-authored a book, *Communicating from the Inside Out*, (B. Bullard & K. Carroll, 1995) outlining quantum-learning strategies with music. For more information on Barbara's work with quantum learning strategies visit her web site,

www.DNAMusic.com or contact her at Remembrancemusic@aol.com.